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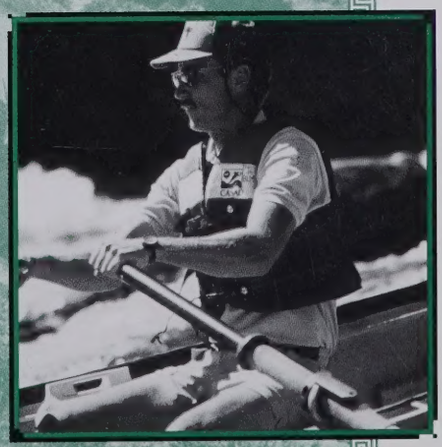
U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NARSC National Applied Resource Sciences Center

Helping Those Who Manage The Land



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1996

NARSC: Helping Those Who Manage The Land

Welcome!

We are the employees of NARSC . . .

Your partner
in applying science and technology to resource management

What is NARSC?
NARSC is the National Applied Resource Sciences Center.

And it was designed with just one purpose in mind: to help people at all organizational levels do their jobs *more quickly and easily.*

NARSC came into being on October 1, 1995, when the Service Center in Denver was dismantled by Secretarial Order *and three new streamlined centers were formed.*

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

NARSC National Applied Resource Sciences Center

NARSC has since emerged as BLM's focal point for *helping meet resource management and technology needs.*

The 130 people who make up NARSC offer a variety of both basic services and scarce skills: from air quality assessment to zoology, and everything in between. Forty-two staff members hold master's degrees or Ph.D.s, and many have professional registrations and certifications. A number of the staff are *recognized nationally as leaders in their field.*

DOCUMENT DELIVERY

Any published materials that you need can be delivered to you by the BLM Library. You should first check your local BLM office resources, as many district and state offices maintain small libraries or central files.

However, if the publication is not readily obtainable, don't hesitate to call us for assistance. Most materials in the BLM Library can be loaned for four weeks. If the item is small, we can make a photocopy for your retention.

If the publication you need is not in our collection, we'll locate it at another library and borrow it on interlibrary loan. We use the interlibrary loan subsystem of OCLC to access collections of all types of libraries throughout the U.S. and Canada. Response time varies from two days to two weeks, with harder-to-locate items taking longer.

CURRENT AWARENESS

The Library's current awareness services are an extension of literature searching. Users can be kept current in selected subject areas through computer-based services called Selective Dissemination of Information (SDI). Search strategies are stored and saved as SDI's in selected data bases. As updated materials are added to those data bases, the SDI programs are executed and we are provided with off-line printouts which are forwarded to you.

HOURS OF OPERATION

The Library is open from 7:45 a.m. to 4:15 p.m. MST Monday through Friday, except on federal holidays. Field employees can call us at (303) 236-6649 or FTS 776-6649.

CONCLUSION

The best way to see what the BLM Library can do is to **use** it. Call us with your information request, or for more detailed information about our services.

BUREAU OF LAND MANAGEMENT
DEPARTMENT OF THE INTERIOR

JULY 1984

GPO 843-769

BLM Library

THE BLM LIBRARY

The Bureau of Land Management has seen a quantum leap in the demand for information to carry out its responsibilities. As a BLM employee you must keep current with what's going on in your field, to evaluate new information and to avoid duplicating someone else's work.

That's where the BLM Library comes in. We offer a full range of services including **reference, referral, literature searching, document delivery** and **current awareness.** The Library has been a part of the BLM Service Center since 1970 to help with the Bureau's information needs. Library services are aimed at keeping you current in research and development, applied technology, legislation and administration. There are no charges to BLM employees or offices for any services provided to them by the Library.

LIBRARY SERVICES

LIBRARY COLLECTION

The BLM Library has over 30,000 volumes and over 200 periodical subscriptions in its collection. These materials cover all aspects of land management, natural resources, minerals, computer science and administration.

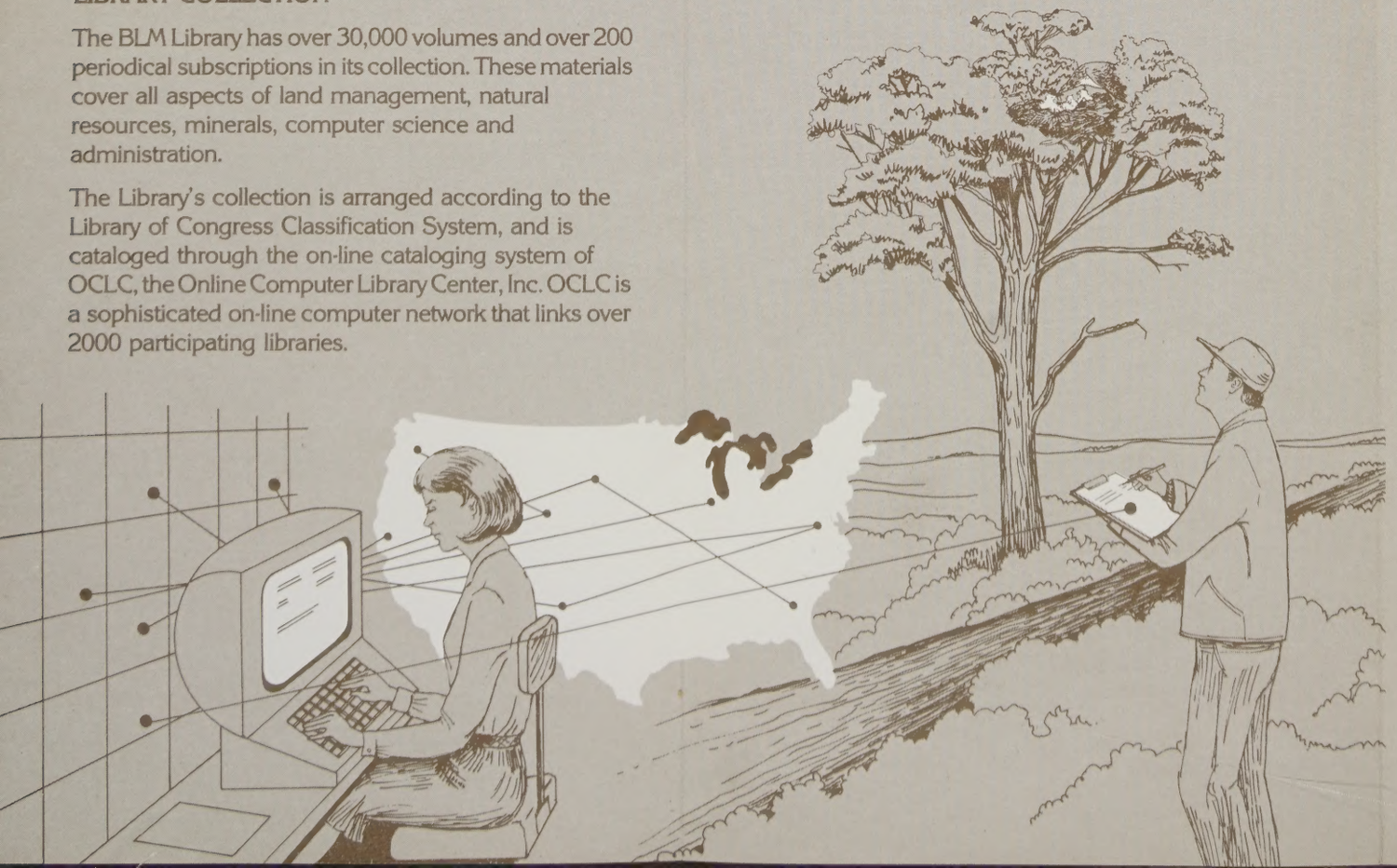
The Library's collection is arranged according to the Library of Congress Classification System, and is cataloged through the on-line cataloging system of OCLC, the Online Computer Library Center, Inc. OCLC is a sophisticated on-line computer network that links over 2000 participating libraries.

Library materials are available on paper copies, microfilm or microfiche. The Library has reader-printers for making copies from microfilm or microfiche.

Some of the government materials in our collection include:

U.S. Geological Survey—bulletins, circulars, papers, etc.
U.S. Environmental Protection Agency—various series
U.S. Forest Service—various series
OMB Bulletins and Circulars
Presidential Executive Orders
  June 1845—present
BLM Memoranda
  Instruction and Information
    Washington Office: 1964—present
    Denver Service Center: 1965—present

Legal References
  U.S. Statutes-at-Large
  U.S. Code Congressional & Administrative News
  Code of Federal Regulations (all titles)
  U.S. Code
Federal Register
  All volumes available
Congressional Record
Sets of decisions of federal agencies that concern BLM



REFERENCE

A full range of reference services is provided by the Library staff. Requests involve short, specific information questions that may be answered while the user is still on the phone or general reference questions that require more extensive searching. Comprehensive information requests require identification and location of materials; response time will vary from several hours to many days.

REFERRAL

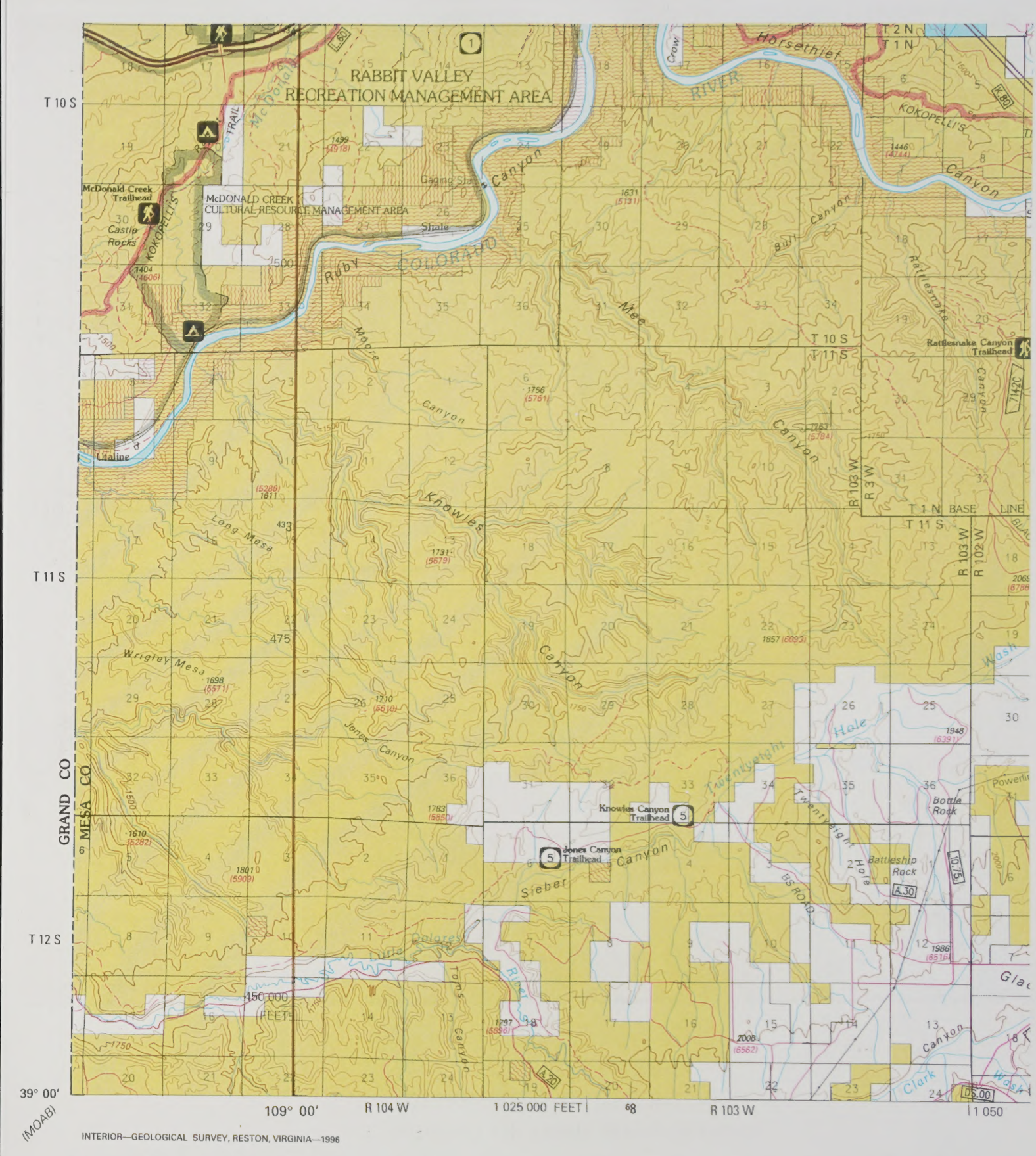
Often the most current or relevant information you seek may not yet be published and may be available only from a specialist. The Library's staff can locate researchers or organizations that specialize in your subject area. We have a good knowledge of potential referrals from the personal contacts we make, and from the computerized networks we access.

LITERATURE SEARCHING

The BLM Library has computer-based literature searching capabilities which allow the staff to quickly prepare bibliographies on almost any subject. We can access over 175 data bases that include periodicals, books, reports and other publications. Some data bases provide abstracts along with their citations.

You may request bibliographies according to subject area, author, report number or other category. The Library can also find material even when you have only partial information on an item.

You may request a literature search by filling out a search request form (BLM Form 1279-2) or by calling us with the details of your request.



This map contains an extension to the State line.

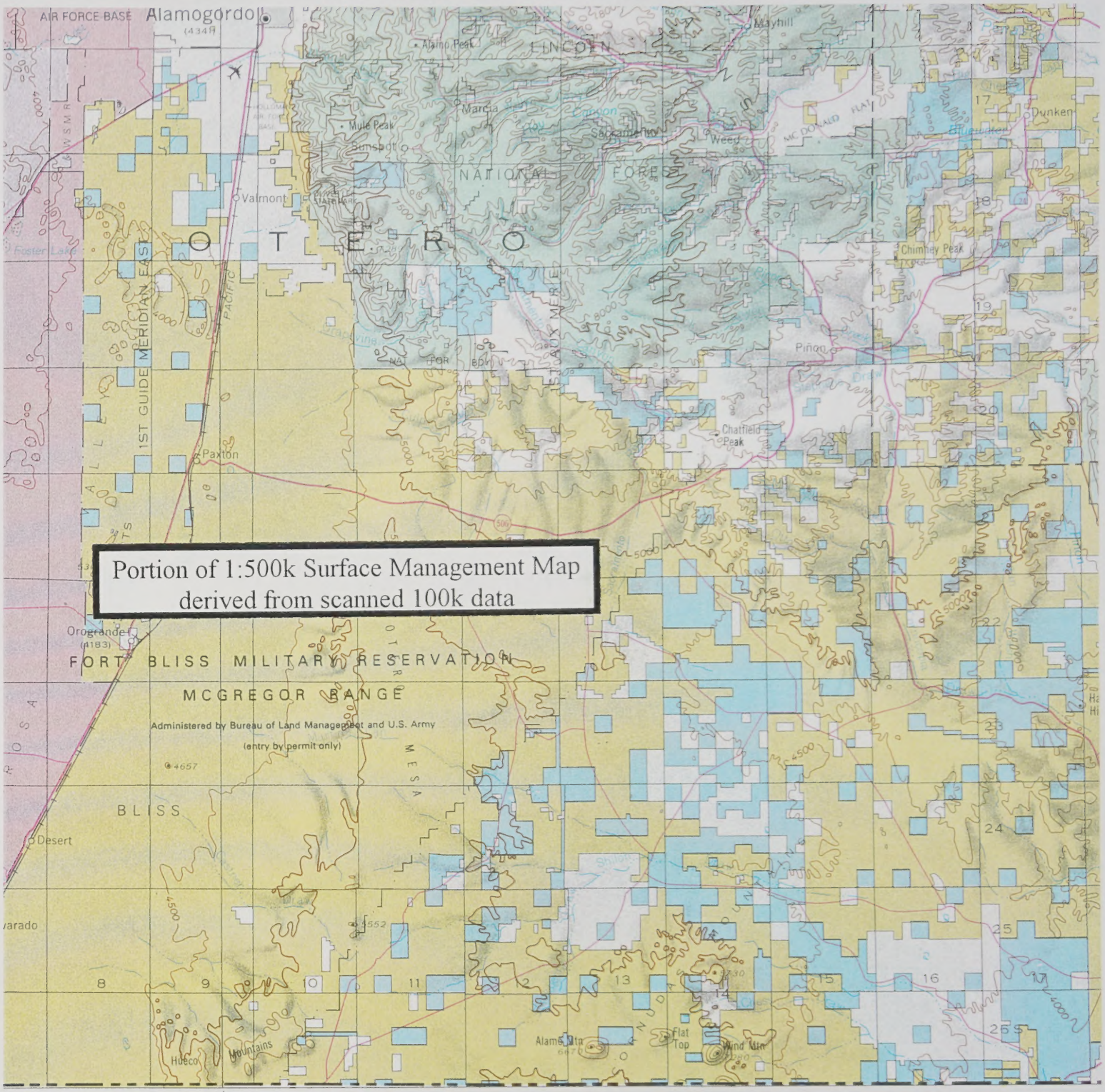
In general, BLM Public Lands are open to a number of recreational activities in addition to those that may be highlighted on the map. These activities include camping, fishing, hiking and hunting. Certain restrictions may apply. Contact the appropriate BLM State, District or Resource Area Office for more information.

KILOMETERS 1

MILES 1

Portion of 1:100k Surface Management Map showing BLM Recreation enhancements

BLM RECREATION SITES, TRAILS AND AREAS LEGEND



UNITED STATES
DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT

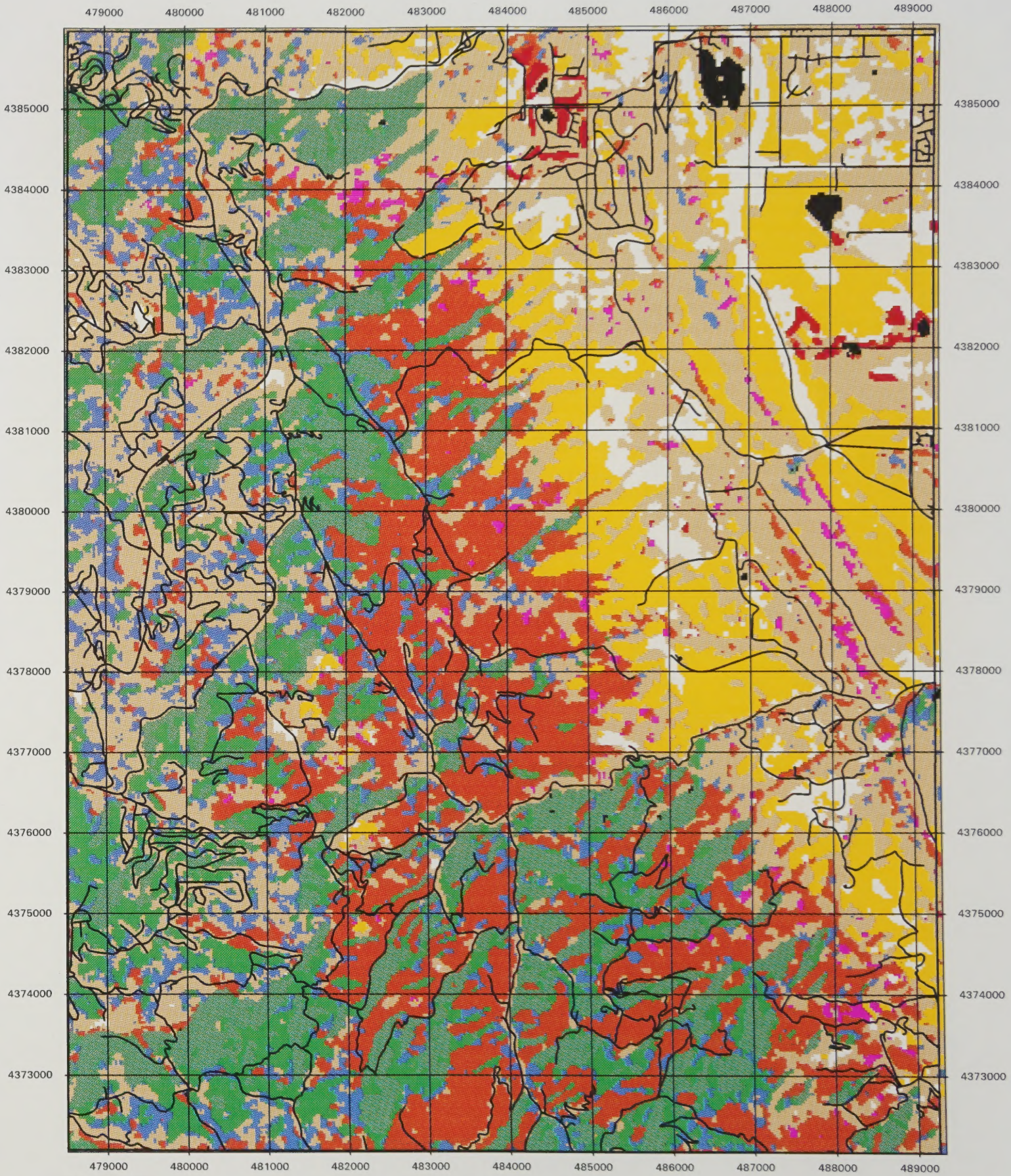
SURFACE MANAGEMENT RESPONSIBI

STATE OF NEW MEXICO

1994

Scale 1:500,000

1 inch equals approximately 8 miles



CLASSIFICATION

- Water
- Shadows
- Forest Conifers
- Scrub brush
- Gambel Oak
- Pinyon-Juniper
- Bare/Urban
- Grasslands
- Urban lawns
- Mtn Mahogany

LAND USE/LAND COVER MAP FROM LANDSAT TM IMAGERY

Scale

2 0 2 Kilometers

1 0 1 Miles

2000 0 2000 Meters

Indian Hills, CO
7.5 minute Series

NARSC National Applied Resource Sciences Center

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QUARTERLY REPORT

HIGH TECH & HAND LETTERING: PRESERVING IDAHO'S SURVEY RECORDS

Original cadastral survey records—plats and field notes—are critically important records that must be preserved and readily available if BLM is to do its job. These one-of-a-kind historical documents portray the land boundaries essential in defining ownership and also describe the hardships surveyors encountered over one hundred years ago as they surveyed lands for our growing Nation.

Until recently, these original, irreplaceable paper records were disorganized and deteriorating. Now, using microfiche technology, they have been abstracted, indexed, and preserved.

NARSC's micrographics team recently completed an 8-year project in partnership with Idaho BLM to abstract and film an estimated 404,000 pages of old survey records, many of which were faded and crumbling. It took 2 years for Idaho's survey information to be abstracted and indexed and for the 98,000 lines of data to be entered into the Cadastral Field Note System database.

The actual microfilming process took 2 years to complete. One significant hurdle was that over 4,000 pages were too faded to be filmed. These pages were first photocopied. The text was then enhanced by *hand-tracing* individual words, lines, and even entire pages that were faded. Finally, each enhanced page was placed next to the original, faded version and filmed. Over the course of 2 years, an estimated 431,600 images were filmed and placed in microfiche jackets.

Throughout the lengthy abstracting and filming process, the micrographics team worked closely with the Idaho State Office, coordinating the myriad details for the project and ensuring open lines of communication. Duane Olsen and Gary Oviatt were the primary contacts and proved very helpful.

Once Idaho's survey records were abstracted and filmed, they were organized in township and range order, which makes it much easier for BLM employees and the public (title insurance companies, oil and gas producers, private surveyors, etc.) to locate information for a particular township or region.

Microfiche images are used in place of the original, deteriorating paper documents. The original plats and field notes can then be preserved in an environmentally controlled records center to help prevent any further deterioration of these irreplaceable documents.

The micrographics team has, over the past 20 years, filmed every State's cadastral survey records except Wyoming's—and work has already started on

(continued on page 2)

4th Quarter Sept '96

(continued from page 1)

Wyoming's plats and field notes. And the task is ongoing: each year, newly approved surveys from across the Bureau add up to over 20,000 pages and 4,000 plats, each of which must be abstracted, filmed, and added to the existing microfiche records.

The micrographics team now has over 300,000 master film jackets containing millions of images for the various states stored in a special room under controlled temperature, humidity, and air purity standards. The microfiche masters are used to provide copies to State Offices and others; in a typical year, over 300 orders are received and filled. Orders range from duplicating the field notes and plats for a single township to providing the duplicate plats and notes for an entire state.

The filming of original cadastral records is an excellent example of the good work and results that can flow from successful partnerships.

CONSENSUS CLEARS THE AIR

It's not often that the governors of eight western states, a half dozen federal agencies, four Native American tribes, various local governments, industry, environmental groups, community members, and scholars agree on *anything*. But as members of the Grand Canyon Visibility Transport Commission, they did just that on June 10. This partnership of mixed interests, including BLM, developed an unprecedented strategy to collectively protect visual air quality on the extensive Colorado Plateau for many decades to come.

The Commission not only successfully addressed this air quality issue, but marked a major milestone in consensus building. This success sets the stage for future dialogue on other important land management issues that cross jurisdictional boundaries.

"The process of reaching agreement is by far the success story," says NARSC staff member Scott Archer, BLM's Senior Air Resource Specialist. Scott provided technical assistance and support to Les Rosenkrance, Director of the Office of Fire and Aviation, as the BLM representative on the Commission's Operations and Technical Committees. These committees developed a baseline emissions inventory and projections, and alternative management scenarios, determining their relative effectiveness. The effort included developing comprehensive databases and computer applications to analyze and model air quality, now and in the future. As part of an extensive review of scientific, technical, demographic, and other information, this data was used to formulate the Commission's plan.

The 70-point plan culminates the work of the Commission, formed in 1991 by Congress as a result of amendments to the Clean Air Act in 1990. The Commission's sole mission was to tackle the problem of deteriorating visual air quality on the Colorado Plateau, a unique area known worldwide for its spectacular 100-mile panoramas. The plateau includes the Grand Canyon and 15 other National Parks and Wilderness Areas in Colorado, New Mexico, Arizona, and Utah. The air quality is potentially impacted by activities in much of the southwestern and western United States and Mexico.

The Commission's extensive report, *Recommendations for Improving Western Vistas*, was presented to the Environmental Protection Agency (EPA). By law, under the Clean Air Act, the EPA now has 18 months to evaluate the recommendations and take any necessary action.

Primary recommendations include air pollution reduction and prevention measures for both stationary and mobile sources, such as vehicles, power plants, road dust, and smoke from wildland fire. A recommendation to closely track emissions growth in "clean air corridors" is also included.

SHARING THE WEALTH—A 1-YEAR DETAIL WITH EPA

BLM and the EPA often find themselves working together when it comes to hazardous substance and waste site cleanups, sometimes at opposite sides of the table. The stakes are generally high, with significant public health and resource injury issues present and large amounts of money involved.

A year ago, Janet Youngdahl, a NARSC staffer and former attorney specializing in natural resource law, was given an opportunity to work with the local EPA regional office 2 days each week for 6 months on enforcement and compliance cases. This worked out so well that the detail was extended for an additional 6 months.

Janet has been working extensively on Superfund and potentially responsible party (PRP) issues this past year. If PRPs who caused a spill or release can be found, there is an excellent possibility of recovering monetary damages to help restore resources to their original productivity, benefitting both BLM and the public.

Janet spent her year working on Superfund issues around Central City, Colorado, an old gold mining town with a host of problems arising from both old and current mining operations. She participated in site investigations with EPA engineers, worked closely with state agencies and local communities, negotiated with attorneys and PRPs, and helped issue Administrative Orders on Consent regarding what should be done to clean up sites.

One case took over a year to negotiate and resulted in a voluntary agreement to help clean up a mining site, avoiding the expense and time involved in litigation. This was fine with Janet, who gave up practicing law partly because she would rather see people sit down agreeably and reach a win-win consensus than go through a long, bitter struggle in the courts.

This highly successful partnership between two agencies has benefitted everyone. EPA benefitted by obtaining assistance with their sometimes overwhelming caseload and gaining a perspective on how BLM sees things. BLM benefitted by receiving training, and very thorough and in-depth training at that, on Superfund and PRP issues. And both agencies benefitted by building a "bridge" that should prove very useful the next time the two agencies work together on a particular site.

Finally, Janet benefitted by gaining in-depth knowledge that will help her serve BLM field offices, especially when they are confronting a hazardous waste site and all of the myriad problems that result, including how to pay for site cleanup and resource restoration.

ARMY TO HELP BLM BE ALL THAT IT CAN BE

The U.S. Army and BLM may soon become partners to provide better and more advanced technical assistance to field units of both agencies. Bolstered by a Memorandum of Understanding (MOU) between the Army Environmental Center (AEC) and BLM Headquarters, NARSC Director Lee Barkow and Workflow Coordinator Mike Kirby opened a dialogue with the AEC in July. The talks, held at the Aberdeen Proving Grounds, explored possibilities for mutual support and information exchange.

The AEC provides technical assistance and resource expertise to Army installations across the country, much as NARSC supports BLM field offices. Like BLM, the Department of Army deals with land management issues, including clean-up of hazardous material sites and ecosystem management planning. In addition, through an agreement with the Army Corp of Engineers, AEC supports technical mapping, construction and engineering, and natural resource research.

One major way the Army can help BLM is by providing specialized equipment and technical expertise for Hazmat projects. Interestingly, many types of hazardous

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materials found on BLM's public lands are also found on military installations.

Another area of knowledge at the AEC is noxious weed control, an issue with which BLM is increasingly faced. The Army, in partnership with the Department of Agriculture, developed a CD-ROM database identifying noxious weeds and control measures. So far, the CD-ROM includes information on 37 weed species. Copies of this CD-ROM have been provided to BLM weed specialists in each State Office.

Some ways BLM can help the Army Environmental Center include providing access to the BLM Library at NARSC and its comprehensive literature search service. Resource specialists at the AEC and other Army installations currently have no similar access to this type of useful research.

Army installations do not always have full-time natural resource managers or specialists in the various natural resource disciplines, and are seeking expertise among other agencies in the same local areas. NARSC is currently coordinating with Shelley Smith, a BLM archaeologist on detail as a liaison to the AEC at Aberdeen, to facilitate this contact with BLM experts in field offices.

In addition to partnerships with BLM, the AEC supports liaisons with the U.S. Fish and Wildlife Service, the National Resource Conservation Service, the U.S. Forest Service, and the U.S. Geological Survey.

Director's Corner

PARTNERSHIPS PRODUCE RESULTS

Partnerships are fast becoming the key to addressing land management issues throughout the Bureau. They are being developed at all levels of the organization. This quarter we have focused on four different types of partnerships that NARSC personnel have been involved in.

The Idaho Cadastral Survey indexing and microfilming project demonstrates a partnership between the BLM Idaho State Office and NARSC to produce a durable and usable product for all of our internal and external customers. The Grand Canyon Visibility Transport Commission brought together all parties interested in a significant regional issue, which resulted in a consensus strategy. NARSC provided technical support to the project. The EPA partnership demonstrated that both EPA and BLM can benefit through personnel sharing agreements where the host agency gets needed work accomplished and BLM acquires needed experience that will benefit all states when similar requirements are identified. And finally, the partnership with the Army Environmental Center provides BLM with the opportunity to tap into another source of technical assistance in areas where BLM has a significant need and limited expertise or experience. In return, the Army will have the opportunity to tap into BLM for technical assistance in areas where they lack expertise or experience.

NARSC is in a unique position to support your efforts to develop partnerships by either providing technical support through our specialists or developing partnerships that will be beneficial and available to all field offices.

Lee Barkow

NARSC Progress Report

Why a progress report? NARSC is committed to providing quality products and services, which includes feedback to customers and reporting of accomplishments. The intent of this table is to share with you, in general terms, what we have planned for the year, what we have accomplished during the past quarter, and what we have left to do during the year. This progress report demonstrates our commitment and accountability to our customers.

— Lee Barkow

Office	Active Projects/Services	FY 96 Projects/Services Due Through 4th Quarter	FY 96 Projects/Services Completed Through 4th Quarter
AK	10	7	7
AZ	22	11	10
CA	16	17	14
CO	17	15	15
*DC	7	14	13
ES	0	0	0
ID	17	28	28
MT	16	14	14
NV	28	16	13
NM	15	11	11
NIFC	4	8	8
NTC	22	12	12
**NB	5	10	10
NARSC	6	8	8
OR	20	16	15
UT	20	13	13
WO	151	133	128
WY	13	18	18
Totals	**389**	**351**	**337**

*DC = Denver Centers **NB = Non BLM

Projects/Services represented in this report require more than 40 hours of labor or operational funds; assistance provided by NARSC not meeting this threshold is not displayed. Active projects/services represented in this report may have due dates beyond the current fiscal year.

NARSC Directory

Office of the Director (RS-100)

NARSC Director	Lee Barkow	(303) 236-6454
Administrative Assistant	Rheda Dodd	(303) 236-6454
Coordinator of projects for AK, CA, ID, OR, ES, WO, & NIFC	Mike Kirby	(303) 236-6491
Coordinator of projects for AZ, NM, NV, NTC, & Denver Centers	Dave Schafersman	(303) 236-1143
Coordinator of projects for CO, MT, UT, WY, & Other Agencies	Al Strobel	(303) 236-8859
Geographic Sciences Laboratory Manager	Jim Turner	(303)236-0840
BLM Library (RS-150A)		(303) 236-6649

Administrative Group Supervisors

Architecture and Engineering	(RS-110)	L.J. Porter	(303) 236-9516
Geographic Sciences	(RS-120)	Fred Batson	(303) 236-6376
Natural Resource Sciences	(RS-130)	Dan Muller	(303) 236-7198
Resource Analysis and Assessment	(RS-140)	Bill Krech	(303) 236-0150
Information and Communications	(RS-150)	John Matis	(303) 236-1613

NARSC Home Page: http//www.blm.gov/narsc.

NARSC National Applied Resource Sciences Center

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Denver Federal Center, Building 50
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Denver, CO 80225-0047

Bureau of Land Management
National Applied Resource Sciences Center
RS-100, Bldg. 50, DFC
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Denver, CO 80225-0047

You can visit us
on INTERNET
@ http://www.blm.gov/narsc

1946 - 1996

NARSC National Applied Resource Sciences Center

The National Applied Resource Sciences Center (NARSC) supports BLM offices with a broad spectrum of services: biological resources, engineering, lands and minerals, library, mapping sciences, photo imaging, physical sciences, communications, and technology transfer. "Facts About NARSC" briefly describes who we are and how to request our assistance.

Organizational Structure -

Our structure is designed to be responsive to the changing needs of Bureau of Land Management (BLM) and other customers, and to provide quality support and products quickly and efficiently.

The Center is organized into five administrative groups, each consisting of approximately 25 employees and one supervisor. Projects are completed either by individuals or project teams. The project teams consist of individuals from one or more of the administrative groups, along with field office personnel; individuals from other agencies and the private sector may also be included. Three Workflow Coordinators allocate NARSC's resources to meet customer needs, to ensure that open communications are maintained with customers, and to track the progress of active projects. The Workflow Coordinators and Group Supervisors work together to form the teams, allocate resources, and manage project schedules. The Group Supervisors also manage administrative and personnel issues and technical review matters.

Funding -

Funding for NARSC includes labor for Center employees and limited operational costs. As a result, many of NARSC's products and services can be provided at no cost to the requesting BLM organization. Additional funding may be required from the requesting office. The scope of work may require offices to share in or totally fund some efforts.

Products and Services - NARSC

can provide assistance for most needs in the following areas:

1. Land Management Support

- Provide scientific/technical assistance with inventorying and monitoring, analyzing resource conditions, assessing environmental damages, performing HAZMAT site evaluations, conducting facility assessments, developing remedial actions, and evaluating resource management proposals.

- Provide scarce skills and technical assistance, including training, demonstrations of processes and methods, and consultation, to support on-the-ground field work.

- Produce mapping products, such as administrative status maps and special management maps, as requested by field organizations; provide interpretation of and consultation on aerial photos; and assist field offices in GIS activities and in the use of remotely sensed data for various applications.

- Produce architectural and engineering drawings, specifications, and cost estimates for Bureau facility designs.

2. Information and Communications

- Provide resource information to field offices through library services, preserve and distribute information through microfiche pro-

Facts About NARSC

NARSC: Helping Those Who Manage The Land

cessing, and provide writing/editing, graphic arts, and video production services to field offices.

3. *National Automated System Representation*

- Provide user representatives for national automated resource systems, and provide tools and expertise to assist Headquarters and field offices in assessing and analyzing resource conditions and land management issues.

In addition, NARSC has two working labs: the Geographic Information Lab and the Facilities Planning, Designing, and Engineering Lab. These labs bring together specialized equipment and scarce skills in an open and innovative forum. The equipment and expertise within these labs are available to all BLM employees. NARSC encourages everyone to come in and use these labs.

Requesting Work - Anyone can ask NARSC for assistance at any time, whether it involves a 5-minute consultation or a multiyear team-based project. A simple phone call, E-mail, or memo to anyone in NARSC will begin the processing of a request.

Processing Requests - When anyone in NARSC receives a request, our ability to meet the request is assessed. If NARSC cannot meet your request, you will be quickly informed. If NARSC accepts your request, a NARSC lead is assigned and, if necessary, a team is selected to produce the requested deliverables. The customer is then sent information regarding the project: the name of the NARSC lead, the NARSC team members, NARSC operations costs, and the agreed-upon deliverables, due dates, and customer funding. The NARSC lead assigned to a project is the central point of contact for the customer and will be accountable for the products provided by NARSC.

Points of Contact - Please continue to use the contacts you have developed over the years. We do not want to impede the level of service that customers are currently receiving. However, if you have a question or are unsure of whom to contact, please feel free to contact any of the following people:

Director Lee Barkow 303-236-1142

Workflow Coordinators

For WO, ES, ID, AK, OR, CA, and NIFC
Mike Kirby 303-236-6491

For NM, AZ, NV, NTC, and BLM Centers
Dave Schafersman 303-236-1143

For CO, WY, MT, UT, and others
Allan Strobel 303-236-8859

Group Supervisors

Architecture and Engineering
L.J. Porter 303-969-5620

Geographic Sciences
Fred Batson 303-236-6376

Natural Resource Sciences
Dan Muller 303-236-7198

Resource Analysis and Assessment
Bill Krech 303-236-0150

Information and Communications
John Matis 303-236-1613

Geographic Information Laboratory Manager
Jim Turner 303-236-0840

Facilities Planning, Designing,
and Engineering Laboratory Manager
Dick Case 303-236-9500

An Overview of the NARSC Geographic Sciences Laboratory

The Geographic Sciences Laboratory, which is an integral part of the NARSC organizational design, is intended to bring together specialized equipment and scarce skills in a collaborative setting that promotes innovation. Many of the projects undertaken by NARSC specialists are performed in laboratory work areas, where specialists from within and outside the Agency are able to interact in an atmosphere that is conducive to teamwork and enhanced productivity.

Sophisticated computer hardware and software, precision measuring equipment, and unique data archives provide a resource that customers can use to complete projects or test new ideas and technological applications in ecosystem-based management. The resources of the lab are available to all BLM specialists and their counterparts in other agencies and organizations and can be scheduled through the Geographic Sciences Laboratory Manager. The following laboratory components form the basis for the Geographic Sciences Laboratory:

Sophisticated computer hardware and software, precision measuring equipment, and unique data archives provide a resource that customers can use to complete projects or test new ideas and technological applications in ecosystem-based management.

Aerial Photography Archive and Processing Laboratory (APAPL)

Although the APAPL was originally established to provide aerial photography archival and reproduction services to BLM field offices, the customer base has expanded over the years to include state and local governments, other Federal agencies, colleges and universities, businesses, and private citizens. Customers currently have at their disposal approximately 400,000 frames of aerial photography covering much of the western United States. The photography dates from the late 1960s and was acquired using various camera and film combinations, including black and white, natural color, and color infrared. Copies of the photography can be obtained in a variety of formats either through in-house reproduction facilities or contract laboratories.

Cartography Laboratory

NARSC mapping science professionals and technicians utilize the resources of the Cartography Laboratory to produce both standard and specialized mapping products. Administrative maps such as the 1:100,000 Surface and Minerals Ownership map assist field office specialists and the public-at-large in locating and identifying public lands, while specialized products such as wilderness, recreation, and off-highway vehicle maps are designed and produced to meets specific program requirements.

Although traditional cartographic techniques are still employed to a large extent, the Laboratory is being modernized to provide services such as high-resolution scanning, precision digital plotting, and automated design and map construction. The laboratory is equipped with an extensive complement of hardware, including IBM® RISC 6000 workstations, IBM-compatible and

MacIntosh computers, a Tangent® Scanner; large-format digitizing tablets, and a Kongsberg® flat-bed plotter. Software includes ERDAS Imagine® (ver. 8.2), ARC/INFO® (rel. 7.03), the INFORMIX® relational data base management system, TechBase®, Microstation®, and AutoCAD®. †

Image Processing Laboratory

Resource specialists are able to use the Image Processing Laboratory to perform a variety of tasks, including vegetation classification, feature mapping and extraction, data verification and updating, visualization, and three-dimensional data modeling. The Laboratory also serves as the repository for the Bureau's archive of satellite imagery, which includes data from the Landsat Multi-Spectral Scanner (MSS) and Thematic Mapper (TM), and SPOT sensors.

Similar in configuration to the other laboratories, the Image Processing Laboratory is equipped with a full suite of hardware and software capabilities available to assist in analyzing and interpreting image-based data. Hardware includes IBM® RISC 6000 workstations, IBM-compatible personal computers, large-format digitizing tablets, Hewlett-Packard 650C DesignJet plotters, and a Xerox® electrostatic plotter. Software includes ERDAS Imagine (ver. 8.2), OrthoMAX®, ARC/INFO (rel. 7.03), INFORMIX®, TechBase®, EarthVision®, and AutoCAD®.

Requesting Assistance

Personnel from any Federal agency can contact NARSC for assistance. If you are interested in obtaining more information about NARSC or the Geographic Sciences Laboratory, please contact the Geographic Sciences Laboratory Manager at (303) 236-0840.

GIS Laboratory

The GIS Laboratory provides a range of tools that NARSC specialists can use to develop GIS applications and assist field offices in resolving problems based on spatial data analysis and interpretation. ERDAS Imagine (ver. 8.2), ARC/INFO (rel. 7.03), INFORMIX®, TechBase®, and AutoCAD® software applications are loaded on a UNIX cluster that resides in the lab. These applications can be used in conjunction with complementary applications in other laboratories to tailor solutions directly to field office needs.

Photogrammetry Laboratory

NARSC cartographers and photogrammetrists use the capabilities of the Photogrammetry Lab to produce a variety of products, including digital elevation models that support field GIS requirements and large-scale site maps that are used by Bureau engineers and architects. NARSC staff are also regularly consulted by government solicitors to assist with litigation involving the definition of cadastral boundaries.

In addition to three Zeiss Planicomp P3 analytical stereo plotters, the Photogrammetry Lab is also equipped with IBM® RISC 6000 workstations and IBM-compatible personal computers. Software includes ERDAS Imagine® (ver. 8.2), ARC/INFO® (rel. 7.03), INFORMIX®, TechBase®, Line Trace Plus, and AutoCAD®.

† *The use of trade names does not constitute an endorsement by the Bureau of Land Management or the Department of the Interior.*

SCIENCE SUPPORT FOR LAND MANAGEMENT

Air Quality and Climate

Hydrology

Hydrology encompasses both surface and ground water issues as well as water quality concerns. NARSC provides field offices with assistance and training in applying hydrological sciences to on-the-ground situations.

Surface water hydrology assistance includes:

- Flood frequency and risk analysis
- Rainfall-runoff modeling
- Flood flow routing
- Instream flow determinations
- Channel geometry methods
- Hydrometeorologic data acquisition

Ground-water resource evaluations include feasibility studies for proposed water well drilling, evaluation of mining-related impacts to ground water, analysis of ground-water contamination, and other studies.

NARSC assists field offices in identifying what water resource assessments are legally required by water quality and water rights statutes. We can also help prepare water quality plans and applications for instream flow water uses.

We have expertise in a variety of computer applications and statistical analysis techniques, including models for surface and ground water, rainfall runoff, salinity, and channel geometry, and GIS interfaces to hydrologic models.

Contact: 303-236-1726

Watershed

Watershed rehabilitation includes the stabilization of stream channels, riparian areas, severely eroding uplands, reclaimed surface mines, and other disturbed sites. NARSC provides technical assistance in the analysis, planning, and design for watershed rehabilitation projects. Examples include:

- Mined land hydrology investigations
- Alternative treatments
- Project monitoring and evaluation
- Stream channel rehabilitation

We are able to provide automated hydrologic terrain analysis using GIS. Examples include:

- Flow path delineation
- Watershed boundary delineation
- Modeling of dams and reservoirs

Contact: 303-236-1726

Aquatic Resources

The Bureau of Land Management administers lands that contain an abundance and diversity of aquatic resources that are prized for their recreational, historical, and economic values. NARSC provides technical leadership, assistance, and support for the aquatic habitat management program.

NARSC offers the following specific services:

- Technical expertise and assistance for inventory, classification, monitoring, restoration, and management of aquatic resources.
- Training for inventory, classification, and management of aquatic resources.
- Technical expertise for planning and conducting water needs assessments.
- Expertise for managing and restoring threatened and endangered aquatic species.

Contact: 303-236-0162

Forestry

BLM is responsible for the management, development, and protection of approximately 8 million acres of commercial forest land. Of this total, the Oregon and California (O&C) revested lands in Western Oregon are generally recognized to be one of the Nation's most productive and valuable commercial forest properties. In addition, public domain forested lands throughout the western states produce a variety of products, including sawtimber, firewood, and posts and poles.

We provide the following specific services:

- Expertise and experience in planning and executing resource (forest) inventories.
- Data analysis using biometrics and mensurational methods.
- Use of forest growth and yield simulation models and harvest simulation models to develop management alternatives.

Contact: 303-236-0158

Plant Ecology and Vegetation

We provide consulting support services in the following areas:

- Special status plans inventory, monitoring, and management
- Threatened and endangered plant species, along with the legislation and regulations pertaining to them
- Vegetation sampling, inventory, monitoring, and management
- Riparian delineation, monitoring, and water use/requirements
- Ecosystem process and functions/implications for ecosystem analysis and management

Contact: 303-236-1833

Rangeland

BLM manages approximately 171 million acres of rangeland. Rangeland management is a distinct discipline founded on ecological principles that deal with using rangelands and range resources for a variety of purposes. These purposes encompass watershed management, wildlife habitat, livestock grazing, recreation and aesthetics, and other associated uses.

We assist field offices in managing public rangelands by providing the following services:

- Maintaining the Inventory Data System (IDS). IDS is a Bureauwide vegetation inventory database that allows field offices to query existing inventories for vegetation, soils, and allotment data. Vegetation data includes species composition based on production. Soils data includes soil taxon name, ecological site name and number, and soil survey number. Allotment data includes the legal description, land status and administrative responsibility, and category (Section 3 or Section 15) for each site. Additional information includes elevation, slope, slope aspect, land form ecological status, and total esti mated production.

- Providing technical information and training on planning and completing vegetation inventories and rangeland monitoring. This includes preparing/maintaining technical documents on methods and procedures for collecting and evaluating field data.

- Representing the Bureau on several interagency teams to promote consistency in collecting and classifying vegetation and ecosystem data among government agencies and user groups.

- Completing the National Rangeland Inventory Monitoring and Evaluation report based on submissions from BLM field and state offices.

Contact: 303-236-0166

Riparian-wetland Area

Riparian-wetland areas comprise less than 10 percent of the 270 million acres of public lands administered by the Bureau of Land Management. The benefits of these vital oases, however, far exceed the relatively small acreage they occupy.

NARSC provides technical assistance in analyzing, planning, designing, and conducting riparian-wetland endeavors.

NARSC provides the following specific services:

- Expertise and practice in designing and conducting inventories, monitoring, and classification of riparian-wetland areas.
- Training in the assessment of functionality (PFC) and the classification of riparian-wet land areas.
- Technical expertise and assistance for riparian-wetland management and restoration.
- Experience in delineating and mapping riparian-wetland areas.

Contact: 303-236-0162

Wildlife

We provide senior technical leadership, assistance, and support for the wildlife habitat management program. Specifically, we offer the following services:

- Developing, adopting, and utilizing new and emerging natural resource technologies such as GIS, Global Positioning systems, viable population analysis, wildlife economics, and biodiversity

- Providing assistance, consultation, evaluation, and training in specific habitat management, EIS assessment, effects of exotic animals on native species, grazing impacts, hunting impacts, and population management

- Assisting in Habitat Evaluation Procedures (HEP)

- Providing technical expertise and assistance for inventory, monitoring, habitat condition evaluation, habitat management and improvement, and evaluation and analysis of Habitat Management Plans and ecosystem management proposals

Contact: 303-236-6310

Cartography

We provide a variety of mapping products and services that are used by BLM employees to manage the land and by the general public for hunting, hiking and other recreational pursuits. Some of these products are listed below:

- **100K and 500K Administrative Map Series:** This unique series of maps portrays both land ownership and recreational enhancements for all of the western U.S. We revise 50 of these maps each year and reprint 90 others to ensure the two map series are kept current and useful.

Contact: 303-236-7345.

- **BLM Special Mapping Products:** We assist in designing and developing maps for specific audiences and purposes. One example is the Desert Access Guides that depict wilderness areas, recreational opportunities, and surface/subsurface ownership for the California Desert Area. Another example is the BLM Wilderness Map Series, a series of state maps that depict both designated wilderness areas and wilderness study areas.

Contact: 303-236-7345.

- **Digital Map Scanning:** We provide digital raster document scanning in 8-bit color with resolution up to 500 dpi on a drum format Tangent scanner. Image sizes up to 34" by 46" are available. In addition, raster editing and vectorizing services are available using ArcScan (ArcInfo) and Line Trace Plus with a variety of vector file output formats.

Contact: 303-236-0113.

- **Large-Format Flatbed Vector Plotting:** We use a large-format flatbed Kongsberg plotter that can produce plots up to 6 by 8 feet in size. Accuracies are better than .001 inch with output formats in 8-color ballpoint, felt tip pen, rapidograph pen, scribecoat en graving, cut-and-peel cutting, and photo lighthead (positive).

Contact: 303-236-7463.

Photogrammetry

Photogrammetry involves using aerial photographs to measure the earth's surface. NARSC has the photogrammetric capability to create a variety of digital data sets.

- Large-Scale Topographic Site Mapping: Depending on project requirements, NARSC can provide topographic data at numerous scales and accuracies. Elevation data may be represented in a conventional contour interval format or by mass points and breaklines. These data sets are produced in Auto CAD and can be provided in both digital and hard-copy formats or can be output in other formats (ARC info, DLG, etc). These products assist BLM and other professionals in managing, assessing, inventorying, designing, and planning & construction.

- Digital Elevation Models: NARSC produces Digital Elevation Models (DEMs) from U.S. Geological Survey 7 1/2-minute quads by scanning the contour separates and then converting the raster image to a tagged vector file. This file is then resampled to produce the DEM, which is added to the National Digital Cartographic Data Base.

- Riparian Boundary Investigation: Historical and newly aquired photography is used to compile maps of topographic and cultural features. These multiyear base maps track the spatial history of the riparian zone and are an invaluable tool for the boundary specialist during the investigative process.

Contact: 303-236-0172

Geographic Information Systems/Remote Sensing

Geographic information systems (GIS) and remote sensing provide the means for storing, querying, analyzing, correlating, modeling, and displaying digital cartographic data, remotely sensed (aircraft, satellite, etc.) imagery, and geographically referenced field survey and sampling data.

We can help the experienced user in creating models for sophisticated ecosystem-based solutions. We can also help train the new user, teaching skills that can be used to make a simple map.

Specific products and services include:

- Training field people in GIS/remote sensing skills on-site or in the NARSC Geographic Sciences Laboratory, equipping them to independently accomplish field analysis tasks.
- Identifying sources of existing or needed data and make it available. Data collection techniques can include global positioning satellite (GPS), aerial photograph, satellite imagery, and digitized map sheets.
- Collecting and organizing data to meet the requirements of the analysis, desired products, and long-term use.
- Supporting interagency data acquisition, exchange mechanisms, and shared databases.
- Integrating known and emerging natural resource models and analysis methods (e.g., prediction, analytical or trend classification, and suitable visualization techniques) into GIS contexts.
- Calibrating and validating methods and models in use or proposed for use; identifying sources of uncertainty or error in GIS methods and spatial data.
- Visualizing spatial data in mapped outputs and reports for resource management decisions.
- Identifying and mitigating organizational and technical obstacles to integrated GIS methods.
- Providing GIS specialists to assist with tasks that field offices are not staffed to accomplish.
- Transferring technology and developed methods through demonstrations.

Contact: 303-236-0150

Aerial Photography

We assist with aerial photography acquisition and planning by:

- Providing acquisition planning and procurement support, including preparation of contract specifications, cost estimations, contract administration, and inspection ser vices for all BLM offices.
- Assisting BLM customers by researching the availability of historical aerial coverage.
- Maintaining the master catalog of BLM coverage with appropriate small-scale index maps. We ensure that BLM coverage is entered in the national database (USGS Aerial Photography Summary Record System) and provide outputs from this database to BLM customers.
- Providing consulting services to BLM clients regarding technical aspects of aerial pho tography (scale, film types, seasons, flight placement, etc.).

Contact: 303-236-6382

We also provide a full-service custom aerial photography reproduction center through our BLM Aerial Photography Archive and Lab. We can help customers locate site coverage for areas in the western U.S., providing detailed information on BLM aerial projects and other possible sources.

A wide variety of reproduction products is available through either in-house or contract lab facilities:

- Both paper and film copies of black-and-white, natural color, or false-color infrared.
- Original 9- by 9-inch aerial roll film using either standardized 1:1 contact printing or customized enlarging of either full or partial frames.
- Multiframe mosaics created either manually or digitally to meet customer's specifica- tions, with associated overlays if desired.

Certification for authenticity is available for any product from original film.

Contact: 303-236-7992

Geodesy/Global Positioning Systems (GPS)

We provide training and technical consultation in the following areas:

- Basic GPS theory and application
- Project planning and logistics
- Network design and pre-analysis
- Data processing
- Network adjustment and analysis
- Use of geodetic network software packages

Contact: 303-236-0181

Geology

Hydro-Geology

Mining Hydrology

Soils

Physical resources such as soils are an essential part of all BLM programs. The soils program therefore provides input into many disciplines.

NARSC assists soil scientists in designing soil surveys, special studies, and related investigations. We also help interpret and apply the resulting data, and provide training for non-soils staff in using soils information.

Examples include:

- Survey area work plans (MOUs)
- Soil survey enhancement strategies
- Soil interpretive guides
- Erosion characterization and monitoring

Contact: 303-236-1726

Soil and Landscape Analysis

Soil and landscape analyses use resource inventory and remote sensing data in geographic information systems (GIS) and relational databases to evaluate resource management alternatives. NARSC provides the following soil and landscape analysis services:

- Soil and vegetation survey enhancement
- Sheet and rill soil erosion prediction using a GIS interface.
- Land terrain analysis and mapping.
- Watershed storm runoff and sediment yield analysis using a GIS interface.

Contact: 303-236-1726

Spatial Archeology

Federal land management agencies are charged with inventorying and evaluating the archeological and historical remains of past lifeways on the landscape. Spatial archeology deals with the position and description of the remains of past cultures, especially the spatial analysis of such remains in the larger environmental situation. Due to the magnitude of the variables in such analysis, meaningful spatial analysis may be accomplished best with a Geographic Information System (GIS).

Management of the physical remains of past cultures requires that records of their location and description be maintained and be readily accessible and usable. Effective and efficient records for the location and description are best kept in GIS. Federal archeologists now have access to "desktop GIS," also known as ArcView 2 (and 3). The provides a powerful and yet friendly Graphical User Interface (GUI) with a short learning curve.

We offer Spatial Archeological assistance in the following areas:

- Global Positioning System (GPS) technology to collect Archeological features and their attributes.

- Direct migration of GPS data into GIS for data manipulation and analysis in ArcView as well as in relational data base management systems (RDBMS - SQL).

- Conversion to GIS format of site records in digital databases with UTM fields and at tribute fields such as those in BLM, SHPO, museum, or university automated systems.

Generalized modeling and spatial analysis applied to archeological phenomena.

Development of Computer Based Training (CBT) for training field crews in the technical aspects of field data collection or meeting other training requirements.

- Consultation and training on all of the above.

NARSC assists field offices by providing team members for identifying appropriate methods for spatial data collection, manipulation, and display. We can also help prepare and apply Data Dictionaries for GPS-to-GIS data collection.

We have expertise in a variety of computer applications techniques, including project management and the development of GIS interfaces for site location models.

Contact: 303-236-0105

Public Land History

We can provide information and research into public land policy issues. Topics can range from how the Homestead Act was administered to the history behind grazing districts.

The NARSC public land law historian can provide a variety of services and products:

- Bibliographic information
- Document searches
- Expert witness testimony in legal procedings
- Comprehensive reports/briefings on past policies

Clients will have to pay travel and other expenses for projects requiring extensive research at the National Archives and other record repositories.

Contact: 303-236-6645

Socioeconomics

We can provide socioeconomic support to help identify the crucial "people" issues and attitudes that form the backdrop for everything BLM does, from long-term land use planning to specific cleanup actions for a hazardous waste spill. These people issues are critical to the long-term success of BLM and its programs.

A full continuum of support is available:

- Providing perspective through informal conversations.
- Collecting, integrating, and interpreting socioeconomic data.
- Consulting formally on an EIS or recreation development.
- Preparing a written description of community attitudes surrounding a proposed action.
- Doing trend analysis and futuring to project possible scenarios or conditions.

Contact: 303-236-6496

Dispute Resolution

Dispute resolution is an umbrella phrase used to describe problem-solving methods or techniques. Because access to the courts has become time-consuming, expensive, and stressful, additional methods of settlement have been developed. A couple of the more widely used methods include facilitated negotiations and mediation. In this regard, we can provide the following services to BLM field offices:

- Consultation to parties regarding the various alternatives for resolving disputes.
- Design of a dispute resolution program.
- Training in using various dispute resolution techniques.
- Assistance in applying the various dispute resolution techniques.
- Implementation of dispute resolution methods to address a specific problem.

Contact: 303-236-6508

SCIENCE SUPPORT FOR LAND MANAGEMENT

Interdisciplinary Planning and Analysis

Successful project development requires sound planning. Proper planning results in a project that interacts well with other resource values in the environment. Developing a project without using sound planning principles usually results in conflicts with adjacent resource values.

Interdisciplinary planning and analysis in BLM—including interdisciplinary local area planning (formerly referred to as special recreation management area planning), environmental planning, and recreation project planning—is focused on ecosystem management. Ecological, economic, and social principles are integrated into the management of biological and physical systems to safeguard the long-term ecological sustainability, natural diversity, and productivity of the landscape.

Members of NARSC are trained and experienced in using the principles of interdisciplinary planning and analysis. We stand ready to assist the field with any questions or issues that arise. Specifically, we provide:

- Training in how to develop interdisciplinary local area and recreation project plans.
- Assistance in actually preparing interdisciplinary local area and recreation project plans.

Contact: 303-236-9508

NARSC National Applied Resource Sciences Center

SCIENCE SUPPORT FOR LAND MANAGEMENT

Fire - Wildlands

Fire, as a critical natural process, is integrated into land and resource management on a landscape scale across agency boundaries, and management is based upon the best available science. BLM's wildland fire management program is coordinated by the Office of Fire and Aviation, which is located at the National Interagency Fire Center in Boise, Idaho.

NARSC assists States and districts with the development and implementation of a safe, effective, and efficient fire management program that meets management's objectives. Specifically, we provide the following services:

- Writing and graphics support for fire management publications for BLM and other agencies (brochures, catalogs, fire management plans, reengineering analysis documents, training materials, etc.).
- GIS support for fire management (fire-history mapping and analysis, conversion of fire occurrence data from ASPEN to point data in ARC/INFO, etc.).

Contact: (303) 236-7198

SCIENCE SUPPORT FOR LAND MANAGEMENT

Statistics and Operations Research

Technical expertise is available in the following areas:

- Sampling design, whether it be the design of a range monitoring plan or the design of a questionnaire to identify demographic trends in the Bureau's work force.
- Experimental design to evaluate different management practices and the differences in the responses to those practices.
- Statistical techniques to analyze data and formalize conclusions with a semblance of rigor.
- Decision support systems to help the decisionmaker in a variety of situations, such as the selection of the best candidate for a position, the selection of the best site for a facility, or the formulation and selection of the best alternative in a Resource Management Plan (RMP).
- Operations research techniques to build decision support systems and formalize the decisionmaking process.
- Training and training needs assessment in collecting, analyzing, and interpreting the Bureau's data, and in using statistics and operations research techniques to best serve the needs of BLM and its constituencies.

Contact: 303-236-0097

SCIENCE SUPPORT FOR LAND MANAGEMENT

Visual Resource Management (VRM)

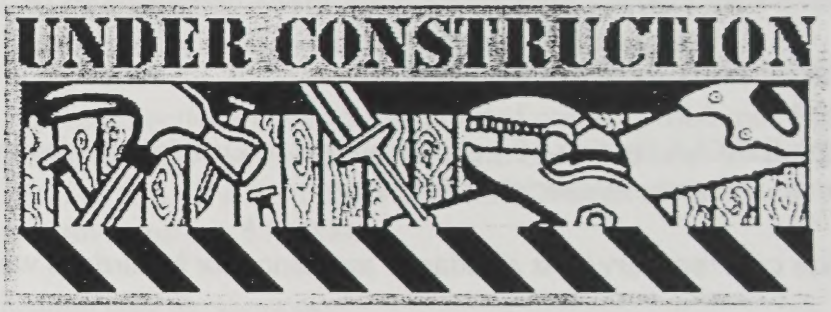
BLM uses the visual resource management, or VRM, system to protect, rehabilitate, and enhance the scenic quality of our Nation's public lands. The VRM system evaluates the quality of existing scenery, takes into account the distance from which that scenery is viewed, and looks at peoples' sensitivity to changes in the landscape.

We are fully trained and experienced in using the VRM system and are ready to assist the field with any VRM questions or issues that arise.

We provide the following services:

- Training in using the VRM system.
- Assistance in developing VRM Management Classes.
- Assistance in preparing the "Contrast Rating" for any development proposed on public lands.

Contact: 303-236-9508


UNDER CONSTRUCTION

CERCLA Cost Recovery/Cost Avoidance

There is an increasing perception that polluters should pay for contamination created by their illegal activities on public lands. Through funding or services contributed by polluters, more hazardous waste sites can be cleaned up, additional restoration work can be done for contaminated or destroyed natural resources, and risks to the public can be reduced.

Polluters are referred to as potentially responsible parties, or PRPs. PRPs can include companies that generate hazardous waste found at a contaminated site, present and former operators at the site, and any transporters who disposed of materials at the site.

NARSC assists with hazardous substance/waste site investigations by:

- Identifying PRPs liable for cleanup costs.
- Drafting CERCLA Section 104(e) information request letters, demand letters for PRP payment, and general/special notice letters.

We provide cost recovery/cost avoidance assistance for hazardous waste site cleanups by:

- Developing case strategy.
- Drafting litigation support documents for the DOI Solicitor's Office and the Department of Justice.
- Drafting nonbinding allocation of responsibility reports.
- Negotiating settlement agreements.
- Drafting Consent Agreements between BLM and PRPs.

We also provide guidance in complying with Resource Conservation and Recovery Act (RCRA) waste management regulations, understanding OSHA hazmat regulations, developing pollution prevention strategies, and identifying recycling alternatives.

Contact: 303-236-1734

SCIENCE SUPPORT FOR LAND MANAGEMENT

Facility Compliance Assessments

The Compliance Assessment—Safety, Health, and the Environment (CASHE) facility assessment program is designed to help BLM field offices comply with environmental and hazardous material safety regulations. CASHE is **not** a hazardous material management or safety program, nor is it an inspection program. CASHE **is** a cooperative effort by local BLM employees and NARSC to improve facility management.

Assessments typically require one week on site. Findings include such things as incompatible hazardous materials storage, improper sampling and management of public drinking water systems, and unpermitted treatment and storage of hazardous waste. At the conclusion of the week, local management and employees are provided a draft copy of the assessment report so that corrective actions can be undertaken immediately.

CASHE provides a cost-effective means to identify and correct problems. Between 80 and 90 percent of CASHE findings can be corrected at no cost, and over 99 percent can be corrected for $2,500 or less. The field office cost for a 1-week assessment, including all travel and administrative costs, is $16,000.

We offer the following specific services:

- Identification of pollution-prevention opportunities at the site.
- Job-specific training related to environmental and safety issues.
- Regulatory research to define how regulations apply to specific facility operations.
- Review of, and help in preparing, the numerous environmental and safety plans (e.g., Spill Prevention Control and Countermeasures Plan, Hazard Communication Plan, etc.) required by law and regulation.
- Immediate feedback through written draft and final reports so that local managers and employees can quickly address concerns.

Contact: 303-236-6418

Hazardous Materials Management

BLM's hazardous materials responsibilities include protecting human health, improving the health of the public lands, and meeting numerous statutory and regulatory requirements. This involves site and engineering evaluations, risk assessment, cost recovery for cleanup efforts, and cleanup actions.

NARSC provides a variety of services in hazmat site evaluation, including:

- Site and engineering evaluations.
- Compliance Assessment–Safety, Health, and the Environment (CASHE) facility audits.
- Risk assessment.
- Health and safety activities.
- Cost recovery and PRP (potentially responsible party) searches.
- Resource injury scoping.

Other services include:

- Remedial/removal design
- Facility compliance assessment
- Natural Resource Damage Assessment and Restoration (NRDAR)

All of the above services are provided in a teaming arrangement with field hazmat staff and are offered at the lowest possible cost.

Contact: 303-236-1726

NARSC National Applied Resource Sciences Center

SCIENCE SUPPORT FOR LAND MANAGEMENT

Natural Resource Damage Assessment and Restoration (NRDAR)

BLM does its best to clean up sites impacted by hazardous chemical releases and oil spills but is sometimes left with injured or destroyed natural resources. Cleanups usually do not fully restore these resources to their original health.

NRDAR means Natural Resource Damage Assessment and Restoration. With NRDAR, BLM can get the money needed to finish the job. Through NRDAR, the money can come from the polluters themselves, new money to restore resources to their pre-spill conditions: healthy, functioning, and productive.

Under NRDAR, BLM identifies resource injuries, determines the cost of restoring the damaged resources, and then negotiates or sues to get the polluters to pay.

BLM field offices can request NRDAR assistance from the National Applied Resource Sciences Center. If requested, NARSC:

- Helps determine whether there are injuries that require restoration.
- Assists in planning projects, preparing proposals for funding, working with contractors, and overseeing the projects.
- Helps coordinate with other bureaus and agencies that are involved.

Contact: 303-236-8858

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Our services range from providing a few minutes of support on the telephone, to committing an entire team of specialists for the life of a project. Work is only undertaken in response to requests, *and the customer is always in the driver's seat.*

Requesting assistance is easy. Just pick up the phone and call anyone in NARSC. Simple requests for help or information will most likely be handled on the spot. More involved projects will be given prompt attention by workflow coordinators, whose primary job is to schedule and track projects so that *everything runs smoothly.*

Services are provided in four basic categories: Architecture/Engineering, Information and Communications, National Automated System User Representation, and Science Support for Land Management.

Give us a call.
We'll do our best to help!

Telephone: 303-236-6491

U.S. DEPARTMENT OF THE INTERIOR
BUREAU OF LAND MANAGEMENT
NATIONAL APPLIED RESOURCE SCIENCES CENTER

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U.S. DEPARTMENT OF THE INTERIOR
MARCH 3, 1849

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